

**RECENT FINDINGS CONCERNING THE MIGRATION AND BREEDING GROUND COMPOSITION OF NORTH ATLANTIC HUMPBAC WHALES.** (ABSTRACT) During 1992 and 1993, the North Atlantic humpback whale (*Megaptera novaeangliae*) was studied throughout its known range in an international project known as the Years of the North Atlantic Humpback (YONAH). Using standardised scarching and sampling methodologies, the study collected an unprecedented number of fluke identification photographs (n=3,001 unique individuals) and skin biopsies (n=2,105 unique individuals) in both the summer feeding grounds and winter breeding grounds. In addition, the samples were compared to the Gulf of Maine life history catalog (871 unique individuals, 224 of known age in 1993), maintained by the Center for Coastal Studies. An analysis of the sex, age, feeding ground origin and timing of identified individuals on the breeding ground produced new discoveries about the migration of North Atlantic humpback whales. These include evidence that a significant number of juvenile whales do not

migrate. Moreover, although the operational sex ratio is skewed towards males, most mature females do migrate, but, unlike males, they show a significant individual, between-year consistency in the timing of their arrival on the breeding ground. This timing appears to be independent of their reproductive status. In addition, results show for the first time that eastern and western North Atlantic animals share a common breeding ground, however, they do not entirely overlap in time, as those from Iceland and Norway arrive on average later in the winter season. Several of these findings appear to be inconsistent with some historic and modern findings from the southern and the north Pacific Oceans. Several possible explanations are discussed.

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**HUMPBAC SONG AND NON-SONG: PATTERNS, SOURCE-LEVELS, LEARNING AND ATTRACTION TO BREACHING SOUNDS.** (ABSTRACT) Humpback whales (*Megaptera novaeangliae*) have a well known, less well understood, singing behaviour. They produce a repertoire of sounds not associated with song. Based on observations from the east and west Australian coast, characteristics of humpback whale vocalisations are presented. The 1994 east coast song was made up of 31 components for a length of 6-10 minutes. Components were mostly centred about the 315 or 400Hz 1/3 octaves but ranged from 25-2500Hz and had peak-peak source levels which ranged over 171-196dB re 1 $\mu$ Pa at one metre. The source level of the same component was seen to vary by up to 14dB (peak-peak) and 0.46s in total length. Some sounds seemed adapted for short range transmission only (< 1km) whereas others seemed better adapted for longer range transmission (many kms). In tropical Australian breeding grounds it was normal that several singers, often at short range, were heard at

any one time. In some instances apparent 'jousting' occurred, where the songs of two singers at similar ranges stayed in step. An instance believed to be a yearling being taught by a 'songmaster' was observed. The believed yearling song was peppered with mistakes and often jumped phrases to keep up with the other. Non-song vocalisations have correlated with aggression, cow-calf or cow-yearling interactions and breaching events. Signals produced during breaching events show strong similarities with impulsive air-gun signals used in petroleum exploration. In trials carried out with an air-gun, believed male humpback whales were attracted to a repetitive air-gun signal, with speculation that the similarity to a breaching signal was the stimulus.

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**CETACEAN CONSERVATION: A NATIONAL PERSPECTIVE.** (ABSTRACT) The Commonwealth of Australia has been administering the *Whale Protection Act 1980* to protect cetaceans for the past twenty years. The legislation was developed and implemented following the decision to halt whaling in Australian waters. It arose primarily out of concern for the possible extinction of a number of the great whale species that had been seriously over-exploited, and came at a time when few if any had ever considered the potential benefits of the non-consumptive uses of whales.

In 2000 that Act, among others, has been repealed and replaced by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which brings Australia's environmental legislation up to date. The Act establishes the Australian Whale Sanctuary in recognition of the high level of

protection afforded to cetaceans. It also heralds some major changes in the management of the marine environment, especially in relation to the approval of actions that may affect cetaceans.

This year has also seen the 52nd annual meeting of the International Whaling Commission held in Australia. The Commonwealth Government continues to advocate a policy opposing all commercial and 'scientific' whaling. As part of a goal of establishing a global sanctuary for whales, Australia jointly sponsored the proposal for a South Pacific Whale Sanctuary, which was put to the Plenary meeting for consideration.

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